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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/766,471	01/29/2004	Takeshi Morita	2004_0135A	3718

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EXAMINER	
WARREN, MATTHEW E	

ART UNIT	PAPER NUMBER
2815	

DATE MAILED: 02/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/766,471	MORITA, TAKESHI	
	Examiner	Art Unit	
	Matthew E. Warren	2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 November 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 5-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 5-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *1/4/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to the Amendment filed on November 21, 2005.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 5-8, 14-21 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Independent claims 1 and 14 , each recite the limitation of a "plurality of dummy patterns are formed in a plurality of dummy areas each having a same shape." The grammatical structure of the limitation renders the claim indefinite. It is not clear if the plurality of dummy patterns have the same shape or the plurality of dummy areas have the same shape. Until the applicant clarifies the limitations, the examiner will interpret the limitations to mean a "plurality of dummy patterns are formed in a plurality of dummy areas, each of the plurality of dummy patterns having a same shape."

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 5-9, 14, and 19-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Tamaoka et al. (US Pub. 2002/0014697 A1).

In re claims 1 and 14, Tamaoka et al. shows (fig. 1A and 1B) a semiconductor device comprising: a semiconductor substrate (1) having a pattern forming region and a pattern non- forming region; a wiring pattern (20) formed on said pattern forming region; a plurality of dummy patterns (30) formed on said pattern non-forming region, said plurality of dummy patterns being formed within a plurality of dummy areas each having a same shape (square shape); and an insulating film formed on said wiring pattern and said plurality of dummy patterns; wherein said insulating film is formed by a chemical vapor deposition [0050] and is smoothed by chemical mechanical polishing 0052], and wherein each of said plurality of dummy patterns has a plurality of line patterns (30a) each of which is spaced apart with a width (30b) filled by the deposition of said insulating film.

Although Tamaoka discloses that the insulating film is formed by chemical vapor deposition and is smoothed by chemical mechanical polishing, such a limitation is a "product by process" limitation. A "product by process" claim limitation is directed to the product per se, no matter how actually made, In re Hirao, **190 USPQ 15 at 17**(footnote 3). See also in re Brown, **173 USPQ 685**: In re Luck, **177 USPQ 523**; In re Fessmann, **180 USPQ 324**: In re Avery, **186 USPQ 116** in re Wertheim, **191 USPQ 90** (**209 USPQ**

254 does not deal with this issue); and In re Marosi et al, **218 USPQ 289** final product per se which must be determined in a "product by, all of" claim, and not the patentability of the process, and that an old or obvious product, whether claimed in "product by process" claims or not. Note that Applicant has the burden of proof in such cases, as the above case law makes clear. "Even though product-by- process claims are limited by and defined by the process, determination of patentability is based upon the product itself. The patentability of a product does not depend on its method of production. If the product in product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product is made by a different process." In re Thorpe, 227 USPQ 964, 966 (Fed. Cir. 1985)(citations omitted).

In re claims 5 and 6, Tamaoka shows (figs. 1A and 1B) that the dummy areas each have a square shape and are arranged in lattice form.

In re claims 7 and 20, Tamaoka discloses [0042] wherein the width is approximately less than 72 microns.

In re claims 8 and 19, Tamaoka shows (fig. 1B) that said plurality of dummy patterns are line patterns, and the each of the dummy areas has line patterns spaced apart from each other.

In re claim 21, Tamaoka shows (fig. 1A) that the line patterns are arranged in a same direction.

Claims 9-11 and 14-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Takeuchi et al. (US 6,335,560 B1).

In re claims 9 and 14, Takeuchi shows (figs. 4 and 16) a semiconductor device comprising: a semiconductor substrate having a pattern area (300) and a non-pattern area (100); a conductive pattern formed on said pattern area of said semiconductor substrate; and a plurality of dummy patterns (7) formed on said non-pattern area of said semiconductor substrate, each of said plurality of dummy patterns having a same rectangular outline as each other and being arranged in a matrix with predetermined spacing; and an insulating film (13 and 14 in fig. 4) formed on said wiring pattern and said plurality of dummy patterns, wherein said insulating film is smoothed by chemical mechanical polishing (col. 9, lines 10-42) and wherein each of said plurality of dummy patterns has an opening (2 in fig. 16) so that a pattern ratio of said semiconductor device is reduced. Although Takeuchi discloses that the insulating film is smoothed by chemical mechanical polishing, the limitation of the insulating film formed by chemical vapor deposition and being smoothed by chemical mechanical polishing is a "product by process" limitation. See the explanation above for a "product by process" claim limitation.

In re claims 10 and 11, Takeuchi shows (fig. 16) that each of said plurality of dummy patterns has a square outline and that the opening has a square outline.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 12, 13, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi et al. (US 6,335,560 B1) as applied to claims 9 and 14 above.

In re claims 12, 13, 17, and 18, Takeuchi does not disclose the shape of the opening as being a letter or plurality of letters. However, it would have been obvious to modify the structure as disclosed by Takeuchi since applicants have presented no explanation that these particular configurations of the dummy areas are significant or are anything more than one of numerous configurations a person of ordinary skill in the art would find obvious for the purpose of providing improved integration of the interconnection layers within the semiconductor device. A change in shape is generally recognizing as being within the level of ordinary skill in the art. *In re Dailey*, 149 USPQ 47 (CCPA 1976).

Response to Arguments

Applicant's arguments with respect to claims 1 and 5-21 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Zagrebelny et al. (US 6,833,622 B1) discloses a semiconductor having dummy patterns formed within the substrate for fabricating a planar surface of

the substrate. Although the invention does not particularly pertain to a wiring pattern, Zagrebelny is particularly relevant because a square opening is formed in the dummy pattern.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew E. Warren whose telephone number is (571) 272-1737. The examiner can normally be reached on Mon-Thur and alternating Fri 9:00-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Parker can be reached on (571) 272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MEW
MEW
February 6, 2006

KENNETH PARKER
SUPERVISORY PATENT EXAMINER